

# The Nutrition Reporter™

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## Supplements Making Some Inroads in Conventional Cancer Treatments

Oncologists are typically wary of – if not downright hostile toward – cancer patients who want to take dietary supplements during chemotherapy. These doctors work on the theory that chemo (and radiation) generate cell-killing free radicals, and that antioxidants might interfere with therapy.

Now, with more evidence that antioxidants can enhance conventional therapies and reduce side effects, the use of complementary natural therapies seems to be making some inroads into conventional oncology.

In one recent study, Youssef Al-Tonbary, MD, of Mansoura University Children's Hospital, Egypt, and his colleagues, used several conventional chemo drugs to treat 40 children with acute lymphoblastic leukemia (ALL). Half of the children (10 boys, 10 girls) also received 400 IU daily of vitamin E and 600 mg of N-acetylcysteine (NAC), both potent antioxidants, for 28 days.

Children taking the supplements fared much better than those who did not take them. Specifically, the children given vitamin E and NAC had higher levels of glutathione peroxidase, an antioxidant that aids in detoxifying hazardous chemicals, and lower levels of malondialdehyde, a marker of free radicals.

Furthermore, children taking the supplements had a lower risk of suffering from toxic hepatitis, a common side effect of intense chemotherapy. They also had fewer blood abnormalities and were less likely need blood transfusions.

In a second study, Kara Kelly, MD, of Columbia University Medical Center, New York City, and her colleagues treated 50 children with ALL with chemo. Twenty-four of the children were also given supplements of milk thistle extract, and the other 26 received placebos for two months.

"In the treatment of...ALL, the administration of chemotherapy is frequently interrupted because of liver toxicity," wrote Kelly and her colleagues. They decided to use the herb milk thistle because of its

long history of use in protecting the liver.

Each 240 mg capsule of milk thistle contained 80 mg of silibinin, the active constituent, and the number of capsules given corresponded to the weight of the children. Smaller children received 80 mg of silibinin daily, whereas heavier children received 320 mg daily.

Children receiving the milk thistle capsules had significantly reduced levels of AST and slightly lowered levels of ALT. The reductions in these liver enzymes indicated less liver inflammation. Overall, children taking milk thistle were a little more tolerant of chemo and slightly less likely to need changes in their chemotherapy regimen.

In a third study, John V. Reynolds, MD, of St. James Hospital, Dublin, Ireland, and his colleagues, surgically treated 53 patients with esophageal cancer. After surgery, the patients were fed either a standard nutritional formula or one containing 2.2 grams of eicosapentaenoic acid (EPA), an important omega-3 fat. The formulas were provided via needle feeding for five days after surgery and orally for 21 days.

Patients receiving the conventional formula lost an average of 4 pounds of muscle mass. However, patients receiving the EPA- and DHA-enhanced formula (ProSure, Abbott Laboratories) maintained their weight during the recovery period. The researchers attributed the preservation of muscle mass to the anti-inflammatory benefits of EPA.

References: Al-Tonbary Y, Al-Haggar M, El-Ashry R, et al. Vitamin E and N-acetylcysteine as antioxidant adjuvant therapy in children with acute lymphoblastic leukemia. *Advances in Hematology*, 2009; doi 10.1155/2009/689639. Ladas EJ, Kroll DJ, Oberlies NH, et al. A randomized, controlled, double-blind, pilot study of milk thistle for the treatment of hepatotoxicity in children with acute lymphoblastic leukemia (ALL). *Cancer*, 2010;116:506-513. Ryan AM, Reynolds JV, Healy L, et al. Enteral nutrition enriched with eicosapentaenoic acid (EPA) preserves lean body mass following esophageal cancer surgery: results of a double-blinded randomized controlled trial. *Annals of Surgery*, 2009;249:355-363. □

More research summaries on next page

**Perspectives**

**Reading Between the Lines**

Physicians and scientists often speak in a language all their own – and in the process, they often obscure the real meaning of what they say, research, and write. Consider a recent study in *Genome Research*.

The researchers looked at some of the genes in people with lupus and rheumatoid arthritis. They found that people with these diseases had lower levels of methylated DNA. A description of the research in *Science News* noted that “methylation places a type of chemical mark on DNA that generally reduces gene activity without changing the genes themselves.”

That probably doesn’t have a lot of practical meaning to the average person, so I’ll translate it into English. Methylation is a process in which a “methyl group,” which contains one carbon and three hydrogen atoms, attaches to DNA and changes how that little bit of DNA functions.

Still sounding a bit arcane? Okay, here’s the payoff:

Methyl groups are made from B vitamins, particularly folic acid. So what the researchers were really saying, but never came right out and said, was this: People with lupus and rheumatoid arthritis probably aren’t consuming enough B vitamins to make enough methyl groups. –*JC*

**Pycnogenol® Supplements Found Helpful in Easing Hemorrhoids**

Hemorrhoids are one of those health conditions that is literally a pain in the you-know-what. But a new study has found that an antioxidant supplement can stop bleeding and significantly reduce pain from hemorrhoids.

Peter Rohdewald, PhD, of the University of Munster, Germany, and his colleagues treated 84 patients with Pycnogenol, an antioxidant complex extracted from the bark of French maritime pine trees, or placebos.

Treatment began within two days of an acute attack. One group was given 300 mg of Pycnogenol daily for four days, followed by 150 mg daily for three days. A second group received the same dosage but was also given a topical Pycnogenol cream to use. The placebo group was given an inactive supplement.

None of the patients taking Pycnogenol suffered from anal bleeding after seven days of supplements, and they remained free of bleeding when reexamined after another week. In addition, they had significant reductions in pain. Patients taking placebos also had

reductions in pain but no decrease in bleeding.

Patients taking the Pycnogenol supplements and also using a topical cream had an especially fast and more pronounced recovery.

Pycnogenol contains antioxidant flavonoids, which are known to improve the integrity of blood vessel walls and to reduce permeability.

Reference: Belcaro G, Cesarone MR, Errichi B, et al. Pycnogenol treatment of acute hemorrhoidal episodes. *Phytotherapy Research*, 2009; doi 10.1002/ptr.3021. □

**Blueberries Can Help You Keep Your Marbles When You Get Old**

Cells and animal studies have found that blueberries – rich in antioxidants called anthocyanidins – improve memory. A new study has found that they may improve memory and potentially delay the onset of Alzheimer’s disease.

Robert Krikorian, PhD, of the University of Cincinnati Academic Health Center, Ohio, and his colleagues tested the learning and memory of nine elderly patients diagnosed with early memory changes that often precede Alzheimer’s disease.

The patients were asked to drink approximately a half-quart of blueberry juice daily for 12 weeks. The juice was roughly equivalent to a three-fourths of a pound of blueberries daily.

By the end of the study, the patients had improvements in learning and memory. Their blood sugar levels decreased, a sign of better glucose tolerance, and they also had slightly fewer symptoms of depression.

The researchers noted that while the number of subjects in the study was small, the benefits were impressive. “These preliminary memory findings are encouraging and suggest that consistent supplementation with blueberries may offer an approach to forestall or mitigate neurodegeneration,” they wrote.

The juice was provided by the Wild Blueberry Association of North America.

Reference: Krikorian R, Shidler MD, Nash TA, et al. Blueberry supplementation improves memory in older adults. *Journal of Agricultural and Food Chemistry*, 2010: epub ahead of print. □

**Omega-3 Fish Oils May Preserve Telomeres, Slow Rate of Aging**

Telomeres are the tips of chromosomes, and they help maintain genetic stability. As we age, telomeres shorten, which is considered a sign of biological aging. People with longer telomeres are typically younger – either in biological or chronological age – compared with people who have shorter telomeres.

Several nutrients and foods have been associated with longer telomeres, including magnesium and green tea. In a brand new study, researchers have reported that high blood levels of omega-3 fatty acids are associated with longer telomeres.

Ramin Farzaneh-Far, MD, of the University of California, San Francisco, and his colleagues studied 608 people with stable heart disease. The researchers measured the subjects' telomere length at the beginning of the study and again five years later.

People who had the lowest blood levels of two key omega-3 fats, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), experienced the most rapid rate of telomere shortening. In contrast, those with the highest blood levels of EPA and DHA had the slowest rate of telomere shortening.

Many other studies have found that omega-3 fish oils are strongly associated with a relatively low risk of heart diseases and cancer – and a lower risk of disease usually translates to a longer life expectancy.

Reference: Farzaneh-Far R, Lin J, Epel ES, et al. Association of marine omega-3 fatty acid levels with telomeric aging in patients with coronary heart disease. *JAMA*, 2010;303:250-257. □

## Does Inadequate Vitamin D Increase Hospital Deaths?

People who are critically ill and in hospital intensive care units (ICUs) have a high risk of complications and death. But the risk of serious problems, especially after surgery, could be reduced with adequate vitamin D supplements.

“The association between vitamin D deficiency and chronic illness, and its likely progressive decline with intensive care unit stay due to sunlight and dietary depletion is well-known,” wrote Paul Lee, MBBS, of St. Vincent’s Hospital, Sydney, Australia. “Despite this knowledge, vitamin D deficiency is seldom considered and rarely replaced adequately, if at all, in critically ill patients.”

Writing in *Intensive Care Medicine*, Lee noted that low levels of calcium and high levels of parathyroid hormone are common in patients being treated in ICUs. Calcium supplementation doesn’t correct these abnormalities, but they are signs of inadequate vitamin D levels.

Lee noted that some of the potential consequences of low vitamin D are common complications in ICUs. They include high blood sugar, low calcium, respiratory failure, impaired microcirculation, organ failure, hospital-acquired infections, slow neurological recovery, and coma.

“Vitamin D replacement is seldom considered in intensive care medicine....The potential for vitamin D

therapy is important...[and] is inexpensive and safe...” Lee wrote.

Reference: Lee P, Nair P, Eisman JA, et al. Vitamin D deficiency in the intensive care unit: the invisible accomplice to morbidity and mortality. *Intensive Care Medicine*, 2009: doi 10.1007/s00134-009-1642-x. □

## Supplements Reduce Pain in People with Back Problems

Radicular pain is a type of neuropathy that affects people with nerve compression in the vertebrae. Symptoms can include stabbing or burning pain, as well as a tingling and numbness similar to when an arm or leg “falls asleep.” The typical treatments include analgesic drugs and physical therapy.

A new study, however, has found that supplements of alpha-lipoic acid and gamma-linolenic acid (GLA) can significantly reduce radicular pain.

Maurizio Ranieri, MD, of Bari Aldo Moro University, Italy, and his colleagues gave 203 patients either a combination of lipoic acid and GLA supplements, combined with physical therapy or physical therapy alone. Subjects getting the supplements took 600 mg of lipoic acid and 360 mg of GLA during the six-week study.

Based on several clinical tests to assess back pain, patients in both groups had improvements. However, 75 percent of patients receiving both supplements and physical therapy had far greater reductions in pain.

Previous studies have found that lipoic acid and GLA are helpful in reducing diabetic nerve pain.

Reference: Ranieri M, Sciuscio M, Cortese AM, et al. The use of alpha-lipoic acid (ALA), gamma linolenic acid (GLA) and rehabilitation in the treatment of back pain: effect on health-related quality of life. *International Journal of Immunopathology and Pharmacology*, 2009;22 (3 Supp): 45-50. □

## Niacin Boosts HDL, But Also Improves Blood Vessel Tone

The niacin form of vitamin B3 has been used since 1955 to lower total and low-density lipoprotein (LDL) cholesterol levels and to raise levels of the “good” high-density lipoprotein (HDL) cholesterol. Most people are able to tolerate niacin, but an estimated 15 percent stop using it because it causes an hour-long tingling and flushing sensation (triggered by the release of prostaglandin D2).

In a recent study, Ulf Landmesser, MD, of University Hospital, Zurich, Switzerland, and his colleagues explored some of the cardiovascular benefits of Niaspan, a prescription form of extended-release niacin. Similar products are sold over the counter at health food stores.

Landmesser first compared the properties of HDL

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## Quick Reviews of Recent Research

### • Nutrients boost brain cells

Given adequate nutrition, the brain is capable of growing new neurons. Spanish researchers tested the effects of polyphenolic flavonoids and essential fatty acids on neurogenesis (the growth of new brain cells) in laboratory mice. The researchers documented that the combination of nutrients increased neurogenesis in the olfactory bulb and the hippocampus regions of the brain. They wrote that these nutrients could protect against age-related cognitive decline and neurodegenerative diseases, such as Alzheimer's.

Valente T. *Journal of Alzheimer's Disease*, 2009;18:849-865.

### • Lutein and zeaxanthin good for the eyes

Researchers at the University of Georgia in the United States reviewed the evidence of lutein and

### Niacin and Blood-Vessel Tone...

Continues from previous page

in 10 healthy subjects and 33 patients with type 2 diabetes. In the healthy subjects, HDL stimulated the activity of antioxidants and the production of nitric oxide, a compound that protects the endothelium and improves blood vessel tone. (The endothelium is a layer of cells that line the inside of blood-vessel walls.) In contrast, people with diabetes had lower HDL levels, and the HDL did not have any apparent benefits.

Blood vessel tone is technically known as endothelial function, and normally the endothelium enables blood vessels to flex and aid the movement of blood through the circulatory system. When the endothelium is impaired, a condition known as endothelial dysfunction, blood vessels stiffen and blood pressure may increase.

Landmesser then gave the diabetic patients either niacin or placebos for three months. The niacin dosage was 500 mg daily for the first month, 1,000 mg daily for the second month, and 1,500 mg daily for the third month.

By the end of the study, people taking niacin benefited from increases in HDL levels and greater HDL activity, including more antioxidant activity and greater production of nitric oxide.

"Extended-release niacin therapy not only increases HDL plasma levels but markedly improves endothelial-protective function of HDL in these patients, which is potentially more important."

Reference: Sorrentino SA, Besler C, Rohrer L, et al. Endothelial-vasoprotective effects of high-density lipoprotein are impaired in patients with type 2 diabetes mellitus but are improved after extended-release niacin therapy. *Circulation*, 2010;121:110-122. □

zeaxanthin in vision. These two nutrients, found in kale, spinach, and other dark leafy vegetables, form the macular pigment. They function in part as an "optical filter" that reduces glare. Lutein and zeaxanthin may reduce the long-term risk of macular degeneration.

Stringham JM. *Journal of Food Science*, 2009; doi 10.1111/j.1750-3841.2009.01447.x.

### • St. John's wort helpful for hot flashes

Iranian researchers tested the effects of St. John's wort on hot flashes in middle-age women. After two months of taking herbal supplements, women had significantly fewer, less severe, and short hot flashes, compared with women who took placebos.

Khadijeh A. *Menopause*, 2009; doi 10.1097/gme.0b013e3181b8e02d.

### • Vitamin C may help in rapid-aging disorder

Werner's syndrome (adult progeria) is caused by a genetic mutation that accelerates the aging process. People with this gene mutation develop signs of rapid aging in their 20s and usually die before age 50. Canadian researchers studied mice with a similar mutation. The adult mice were overweight, had diabetes, heart disease, and cancer. When they were given extra vitamin C in their drinking water, they became healthier and lived a normal lifespan.

Vitamin C also improved how the animals stored and burned fat and reduced inflammation.

Massip L. *FASEB Journal*, 2010;24:158-172.

### • Chromium supplements helpful in diabetes

Researchers at Louisiana State University asked patients with type 2 diabetes to take 1,000 mcg of chromium picolinate daily. People with greater insulin resistance and higher blood sugars benefited from chromium, with at least a 10 percent change in insulin sensitivity. Subjects with better glucose tolerance did not benefit from chromium.

Cefalu WT. *Metabolism*, 2009: epub ahead of print.

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